	Α	В	С	D	Е	F	G	Н	I	J	K	L		
1				Backgrou	ınd Statistic	cs for Data	Sets with N	lon-Dete	cts	•	•			
2	Us	ser Selected	d Options											
3	Date/T	ime of Com	putation	7/30/2013	3 11:02:08	ΑM								
4	From File WorkSheet.xls													
5		Full P	recision	OFF										
6	Col	nfidence Co		95%										
7	-		overage	95%										
8	rent or Fut	ture K Obse	•	1										
		ootstrap Ope		2000										
9	IIIDEI OI D	ootstrap Opt	Ciations	2000										
10	BEHP													
	DEIT													
12						Conorol	Statistics							
13			Total Nu	mbor of Ob	servations		Statistics		lumbar of	Missing Obse	ructions	0		
14		NI NI			servations									
15		IN	urriber of					15						
16			Niccont		of Detects	-		Number of Non-Detects						
17			Numi		nct Detects			Number of Distinct Non-Detects						
18					num Detect			Minimum Non-Detect						
19					num Detect					Maximum Nor		31 22.73%		
20					e Detected			Percent Non-Detects						
21					n Detected						Detected	49.33		
22		l	Mean of D	etected Lo	ogged Data	3.485			SD of D	etected Logg	jed Data	0.967		
23														
24							nd Thresho	ld Values	(BTVs)					
25			Tolerand	ce Factor K	(For UTL)	1.997				d2max (f	for USL)	3.062		
26														
27							t on Detect:							
28					est Statistic		Normal GOF Test on Detected Observations Only							
29					/ilk P Value		_							
30				Lilliefors Te	est Statistic	0.192			Lilliefors	GOF Test				
31			5% l	_illiefors Cr	itical Value					5% Significan	ce Level			
32					Data Not N	Normal at 5	% Significa	nce Leve	el					
33														
34			Кар	lan Meier ((KM) Backo	ground Sta	tistics Assu	ming Nor	mal Distrib	oution				
					Mean	40.76					SD	46.06		
35	95% UTL95% Coverage					132.7			4400					
35 36			90% KM Percentile (z)								1 UPL (t)	118.2		
36			9		ercentile (z)				9	5% KM Perce		118.2		
				0% KM Pe	ercentile (z) ercentile (z)	99.78			g	5% KM Perce				
36 37				0% KM Pe		99.78			9	5% KM Perce	entile (z)	116.5		
36 37 38 39			9	0% KM Pe 9% KM Pe	ercentile (z)	99.78 147.9	istics Assur	ning Norn		95% KM Perce	entile (z)	116.5		
36 37 38			9	0% KM Pe 9% KM Pe	ercentile (z)	99.78 147.9 round Stat	istics Assun	ning Norn		95% KM Perce	entile (z)	116.5		
36 37 38 39 40 41			DL	00% KM Pe 19% KM Pe 1/2 Substitu	ercentile (z)	99.78 147.9 round Stati 40.77	istics Assur	ning Norn		95% KM Perce	entile (z) KM USL	116.5 181.8		
36 37 38 39 40			DL	00% KM Pe 19% KM Pe 12 Substitu 1% UTL95%	tion Backg	99.78 147.9 round Stati 40.77 133.3	istics Assun	ning Norr		95% KM Perce	SD UPL (t)	116.5 181.8 46.32		
36 37 38 39 40 41 42			DL	0% KM Pe 9% KM Pe 72 Substitu % UTL95% 90% Pe	tion Backg Mean Coverage	99.78 147.9 round Stati 40.77 133.3 100.1	istics Assur	ning Norn		95% KM Perce 95% I ution 95% 95% Perce	SD UPL (t)	116.5 181.8 46.32 118.6		
36 37 38 39 40 41 42 43 44		DL/2	95	00% KM Pe 19% KM Pe 72 Substitu 72 Substitu 74 UTL95% 90% Pe 99% Pe	tion Backg Mean b Coverage ercentile (z)	99.78 147.9 round Stati 40.77 133.3 100.1 148.5			nal Distrib	95% KM Perce 95% I ution 95% 95% Perce	SD UPL (t) entile (z)	116.5 181.8 46.32 118.6 117		
36 37 38 39 40 41 42 43 44 45		DL/2	95	00% KM Pe 19% KM Pe 72 Substitu 72 Substitu 74 UTL95% 90% Pe 99% Pe	tion Backg Mean b Coverage ercentile (z)	99.78 147.9 round Stati 40.77 133.3 100.1 148.5			nal Distrib	95% KM Perce 95% I ution 95% 95% Perce	SD UPL (t) entile (z)	116.5 181.8 46.32 118.6 117		
36 37 38 39 40 41 42 43 44		DL/2	95	00% KM Pe 19% KM Pe 12 Substitu 12 Substitu 13 UTL95% 190% Pe 199% Pe 16 recommen	tion Backg Mean Coverage ercentile (z) ercentile (z) ded metho	99.78 147.9 round Stati 40.77 133.3 100.1 148.5 d. DL/2 pro		ompariso	nal Distribi	95% KM Perce 95% I ution 95% 95% Perce	SD UPL (t) entile (z)	116.5 181.8 46.32 118.6 117		
36 37 38 39 40 41 42 43 44 45 46 47		DL/2	95	00% KM Pe 19% KM Pe 12 Substitu 12 Substitu 13 UTL95% 90% Pe 199% Pe 14 recommen	tion Backg Mean Coverage ercentile (z) ercentile (z) ded metho	99.78 147.9 round Stati 40.77 133.3 100.1 148.5 d. DL/2 pro	ovided for co	ompariso	nal Distrib	95% KM Perce 95% I ution 95% 95% Perce	SD UPL (t) entile (z) 5% USL ns	116.5 181.8 46.32 118.6 117		
36 37 38 39 40 41 42 43 44 45 46 47 48		DL/2	DL 95° 2 is not a	2 Substitu UTL95% 90% Pe 99% Pe recommen A-D Te	Mean of Coverage ercentile (z) Trice tion Backg Mean of Coverage ercentile (z) Ercentile (z) Ercentile (z) Ercentile (z) Ercentile (z) Ercentile (z)	99.78 147.9 round Stati 40.77 133.3 100.1 148.5 d. DL/2 pro	ovided for co	ompariso servations And	nal Distrib	95% KM Perce 95% I ution 95% 95% Perce 99 torical reasor	SD UPL (t) entile (z) 5% USL ns	116.5 181.8 46.32 118.6 117 182.6		
36 37 38 39 40 41 42 43 44 45 46 47		DL/2	DL 95° 2 is not a	10% KM Pe 19% KM Pe 12 Substitu 22 Substitu 34 UTL95% 90% Pe 99% Pe recommen A-D Te 55% A-D Cr	tion Backg Mean b Coverage ercentile (z) ercentile (z) ded metho mma GOF T est Statistic	99.78 147.9 round Stati 40.77 133.3 100.1 148.5 d. DL/2 pro ests on De 0.463 0.772	etected dat	ompariso servations And a appear	nal Distributions and his conly derson-Da	95% KM Perce 95% I ution 95% 95% Perce 99 torical reason	SD O UPL (t) Sentile (z) S% USL ns	116.5 181.8 46.32 118.6 117 182.6		
36 37 38 39 40 41 42 43 44 45 46 47 48 49 50		DL/2	DL 95 2 is not a	10% KM Pe 19% KM Pe 12 Substitu 12 Substitu 13 UTL95% 90% Pe 14 99% Pe 16 Pecommen A-D Te 15% A-D Cr K-S Te	tion Backg Mean Coverage Proentile (z) Arcentile (z)	99.78 147.9 round Stati 40.77 133.3 100.1 148.5 d. DL/2 pro ests on De 0.463 0.772 0.0856	etected Obs	ompariso servations And a appear Ke	ns and his s Only derson-Da Gamma D olmogrov-S	95% KM Perce 95% I ution 95% 95% Perce 99 torical reasor	SD UPL (t) entile (z) 5% USL ns	116.5 181.8 46.32 118.6 117 182.6		
36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51		DL/2	DL 95 2 is not a	"2 Substitu" "4 Substitu" "5 UTL95% 90% Pe 99% Pe recommen A-D Te 5% A-D Cr K-S Te 5% K-S Cr	Mean of Coverage ercentile (z)	99.78 147.9 round Stati 40.77 133.3 100.1 148.5 d. DL/2 pro ests on De 0.463 0.772 0.0856 0.127	etected Obs	ompariso ervations And a appear Ko a appear	ns and his s Only derson-Da Gamma D olmogrov-S	95% KM Perce 95% I ution 95% Perce 99 torical reasor rling GOF Tes istributed at 5° Smirnoff GOF	SD UPL (t) entile (z) 5% USL ns	116.5 181.8 46.32 118.6 117 182.6		
36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52		DL/2	DL 95 2 is not a	"2 Substitu" "4 Substitu" "5 UTL95% 90% Pe 99% Pe recommen A-D Te 5% A-D Cr K-S Te 5% K-S Cr	Mean of Coverage ercentile (z)	99.78 147.9 round Stati 40.77 133.3 100.1 148.5 d. DL/2 pro ests on De 0.463 0.772 0.0856 0.127	etected dat	ompariso ervations And a appear Ko a appear	ns and his s Only derson-Da Gamma D olmogrov-S	95% KM Perce 95% I ution 95% Perce 99 torical reasor rling GOF Tes istributed at 5° Smirnoff GOF	SD UPL (t) entile (z) 5% USL ns	116.5 181.8 46.32 118.6 117 182.6		
36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53		DL/2	DL 95 2 is not a	"2 Substitu" "4 Substitu" "5 UTL95% 90% Pe 99% Pe recommen A-D Te 5% A-D Cr K-S Te 5% K-S Cr	Mean of Coverage ercentile (z)	99.78 147.9 round Stati 40.77 133.3 100.1 148.5 d. DL/2 pro ests on De 0.463 0.772 0.0856 0.127 Gamma Di	etected dat	ompariso ervations And a appear Ko a appear 5% Signi	ns and his s Only derson-Da Gamma D blmogrov-S Gamma D ficance Le	95% KM Perce 95% I ution 95% Perce 99 torical reasor rling GOF Tes istributed at 5° Smirnoff GOF	SD UPL (t) entile (z) 5% USL ns	116.5 181.8 46.32 118.6 117 182.6		
36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54		DL/2	DL 95 2 is not a	9% KM Pe 9% KM Pe 12 Substitu 12 Substitu 13 UTL95% 90% Pe 99% Pe 14 recommen A-D Te 15 A-D Cr 16 K-S Te 16 K-S Cr 16 etected da	Mean of Coverage ercentile (z)	99.78 147.9 round Stati 40.77 133.3 100.1 148.5 d. DL/2 pro rests on De 0.463 0.772 0.0856 0.127 Gamma Di	etected dat etected dat etected dat etected dat	ompariso ervations And a appear Ko a appear 5% Signi	ns and his s Only derson-Da Gamma D olmogrov-S Gamma D ficance Le	95% KM Perce 95% I ution 95% Perce 99 torical reasor rling GOF Tes istributed at 5° Smirnoff GOF	SD UPL (t) entile (z) 5% USL ns	116.5 181.8 46.32 118.6 117 182.6		
36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55		DL/2	DL 95 2 is not a	10% KM Pe 19% KM Pe 19% KM Pe 12 Substitu 12 Substitu 13 UTL95% 90% Pe 199% Pe 199% Pe 190 Te 5% A-D Cr K-S Te 5% K-S Cr etected da	Mean to Coverage ercentile (z) Mean to Coverage ercentile (z)	99.78 147.9 round Stati 40.77 133.3 100.1 148.5 d. DL/2 pro ests on De 0.463 0.772 0.0856 0.127 Gamma Di statistics or 1.335	etected dat etected dat etected dat etected dat	ompariso ervations And a appear Ko a appear 5% Signi	ns and his s Only derson-Da Gamma D olmogrov-S Gamma D ficance Le	95% KM Perce 95% I ution 95% Perce 95% Perce 95 torical reason rling GOF Tea istributed at 5 Smirnoff GOF istributed at 5	SD UPL (t) entile (z) 5% USL ns Signific	116.5 181.8 46.32 118.6 117 182.6		
36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56		DL/2	DL 95 2 is not a	O% KM Pe 19% KM Pe 19% KM Pe 19 Substitu 10 VIL95% 10 90% Pe 10 99% Pe 10 Pe 1	Mean to Coverage ercentile (z)	99.78 147.9 round Stati 40.77 133.3 100.1 148.5 d. DL/2 pro rests on De 0.463 0.772 0.0856 0.127 Gamma Di statistics or 1.335 37.16	etected dat etected dat etected dat etected dat	ompariso ervations And a appear Ko a appear 5% Signi	ns and his s Only derson-Da Gamma D olmogrov-S Gamma D ficance Le	95% KM Perce 95% I ution 95% 95% Perce 99 torical reason rling GOF Tea istributed at 5 Smirnoff GOF istributed at 5	SD UPL (t) entile (z) 5% USL ns Signification (Signification (Sign	116.5 181.8 46.32 118.6 117 182.6		
36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57		DL/2	DL 95 2 is not a	10% KM Pe 19% KM Pe 19% KM Pe 19% KM Pe 19% Pe 190% Pe 199% Pe 190% Pe	Mean of Coverage ercentile (z)	99.78 147.9 round Stati 40.77 133.3 100.1 148.5 d. DL/2 pro 0.463 0.772 0.0856 0.127 Gamma Di statistics or 1.335 37.16 136.2	etected dat etected dat etected dat etected dat	ompariso ervations And a appear Ko a appear 5% Signi	ns and his s Only derson-Da Gamma D olmogrov-S Gamma D ficance Le	95% KM Perce 95% I ution 95% Perce 95% Perce 95% torical reasor rling GOF Ter istributed at 5° Smirnoff GOF istributed at 5° vel	SD UPL (t) entile (z) 5% USL ns Signification (Signification (Sign	116.5 181.8 46.32 118.6 117 182.6 cance Lev		
36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58		DL/2	DL 95 2 is not a	O% KM Pe 19% Pe	Mean of Coverage ercentile (z)	99.78 147.9 round Stati 40.77 133.3 100.1 148.5 d. DL/2 pro 0.463 0.772 0.0856 0.127 Gamma Dia statistics or 1.335 37.16 136.2 49.62	etected dat etected dat etected dat etected dat	ompariso ervations And a appear Ke a appear 5% Signi	ns and his s Only derson-Da Gamma D blmogrov-S Gamma D ficance Le	ution 95% Perce 95% Perce 95 torical reasor rling GOF Teces istributed at 5° Smirnoff GOF istributed at 5° vel (bias corrected u star (bias corrected u star (bias corrected)	SD OUPL (t) entile (z) 5% USL ns st % Signific w Signific ed MLE) ed MLE) orrected)	116.5 181.8 46.32 118.6 117 182.6 cance Lev		
36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59		DL/2	DL 95 2 is not a	O% KM Pe 19% Pe	Mean of Coverage ercentile (z)	99.78 147.9 round Stati 40.77 133.3 100.1 148.5 d. DL/2 pro 0.463 0.772 0.0856 0.127 Gamma Dia statistics or 1.335 37.16 136.2 49.62	etected dat etected dat etected dat etected dat	ompariso ervations And a appear Ke a appear 5% Signi	ns and his s Only derson-Da Gamma D blmogrov-S Gamma D ficance Le	95% KM Perce 95% I ution 95% Perce 95% Perce 95% torical reasor rling GOF Ter istributed at 5° Smirnoff GOF istributed at 5° vel	SD OUPL (t) entile (z) 5% USL ns st % Signific w Signific ed MLE) ed MLE) orrected)	116.5 181.8 46.32 118.6 117 182.6 cance Lev		
36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60		DL/2	DL 95 2 is not a	10% KM Pei 19%	Mean to Coverage ercentile (z) Mean to Coverage ercentile (z)	99.78 147.9 round Stati 40.77 133.3 100.1 148.5 d. DL/2 pro 0.463 0.772 0.0856 0.127 Gamma Di statistics or 1.335 37.16 136.2 49.62 44.03	etected dat etected dat etected dat stributed at	ompariso And a appear Ke a appear 5% Signi	ns and his s Only derson-Da Gamma D olmogrov-S Gamma D ficance Le k star Theta star nt	ution 95% Perce 95% Perce 95 torical reasor rling GOF Teces istributed at 5° Smirnoff GOF istributed at 5° vel (bias corrected u star (bias corrected u star (bias corrected)	SD OUPL (t) entile (z) 5% USL ns st % Signific w Signific ed MLE) ed MLE) orrected)	116.5 181.8 46.32 118.6 117 182.6 cance Lev		
36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59			DL 95° 2 is not a MLE I	10% KM Pei 19% Pei 190% Pei 190	Mean to Coverage ercentile (z) Mean to Coverage ercentile (z)	99.78 147.9 round Stati 40.77 133.3 100.1 148.5 d. DL/2 pro 0.463 0.772 0.0856 0.127 Gamma Di statistics or 1.335 37.16 136.2 49.62 44.03	etected dat etected dat stributed at Detected I	ompariso Servations And a appear Ke a appear 5% Signi Data Only	ns and his s Only derson-Da Gamma D olmogrov-S Gamma D ficance Le k star Theta star nt	ution 95% Perce 95% Perce 95 torical reasor rling GOF Teces istributed at 5° Smirnoff GOF istributed at 5° vel (bias corrected u star (bias corrected u star (bias corrected)	SD OUPL (t) entile (z) 5% USL ons Signification (2k) ourrected)	116.5 181.8 46.32 118.6 117 182.6 cance Lev		

	Α	В	С		D	E	F	G	Н	I	J	K	L
63									data is sm				
64	For such situations, GROS method tends to yield inflated values of UCLs and BTVs												
65	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates												
66						Minimum	0.01					Mean	39.09
67						Maximum	240					Median	23.5
68	SD						47.52	CV					1.216
69	k hat (MLE)						0.48	k star (bias corrected MLE)					0.468
70	Theta hat (MLE) nu hat (MLE)						81.5	Theta star (bias corrected MLE)					83.53
71						, ,	63.31	nu star (bias corrected) MLE Sd (bias corrected)					61.77
72					•	corrected) quare (2k)	39.09			IVIL	•	Percentile	57.14 107.2
73		9	5% Perce	HILLIE		. ,	153.7					Percentile	268.9
74								a Gamma	ROS Stati	etice on Im			200.9
75 76				-				-	wkins Wixl		-		
77						WH	HW			-, (,		WH	HW
78	Approx. G	amma UT	L with 95°	% Co	verage	181.7	225.3		95%	Approx. Ga	mma UPL	141.7	167
79			95% G		-	370.2	538.4						
80													
81			The follo	owing	statist	ics are cor	nputed usi	ing gamma	distribution	n and KM	estimates		
82			Uppe	r Lim	its usir	ng Wilson I	Hilferty (W	H) and Ha	wkins Wixl	ey (HW) N	lethods		
83					l	k hat (KM)	0.783				nı	u hat (KM)	103.4
84						WH	HW					WH	HW
85	Approx. G	amma UT			-	144.3	151.8		95% /	Approx. Ga	ımma UPL	117.7	121.1
86			95% G	ammد	a USL	262.9	299.3						
87													
88								etected O	bservation				
89						st Statistic	0.0737 0.124	D-44-	d Data		GOF Test	0::6	11
90			5%			tical Value			Significar		rmal at 5%	Significand	ce Levei
91					electet	i Data app	ear Logilo	IIIIai at 5 %	Significal	ice revei			
92		Backgro	und Loan	orma	IROS	Statistics A	Assumina I	ognormal	Distributio	n Usina In	nputed Nor	-Detects	
94		Buokgro				inal Scale	40.59		Diotribute	or comig in	-	Log Scale	3.19
95						jinal Scale	46.44					Log Scale	1.039
96			95			Coverage	193.4			95% BC	A UTL95%	Coverage	195
97		95% B	ootstrap (%) U	TL95%	Coverage	195				95	5% UPL (t)	139.3
98	90% Percentile (z)					91.96				95% Per	centile (z)	134.1	
99				9	9% Pei	rcentile (z)	272.3					95% USL	584.9
100													
101								Data and A	-	-	Distribution		
102						gged Data	3.176		95% KM		ormal)95%		203.3
103	050(1015				1.071				KM UPL (L		145		
104		9:	5% KM Pe	ercent	tile Log	normal (z)	139.4			95%	KM USL (L	ognormal)	636.3
105				Po	ckarou	nd DI /2 Se	atistice Ac	eumina I a	gnormal D	ietribution			
106						inal Scale	40.77	Summy LC	ynviniai L	าอนามนนเปไ	Mean in	Log Scale	3.207
107 108					_	ginal Scale	46.32					Log Scale	1.028
109			95		_	Coverage	192.5					5% UPL (t)	139.2
110						rcentile (z)	92.26					centile (z)	134
111						rcentile (z)	270.1					95% USL	575.6
112		DL/2	2 is not a				d. DL/2 pro	ovided for	compariso	ns and his	torical reas	ons.	
113													
114									ground St				
115			Dat	ta app	ear to	follow a D	iscernible	Distribution	n at 5% Sig	gnificance	Level		
116													
117		Non	parametri					inction ma	ae betwee		and nondet		200
118						Statistic, r	65		afide C		L with95%	_	200
119					Арр	roximate f 95% UPL	1.711 159	Col	inaence C	υeπιcient (CC) achiev	-	0.848
120			OE (% K N	l Chob	shev UPL	243					95% USL	∠4 U
121				/U IXIVI	CHEDY	JUEV UPL	240						
122		Note: The	use of LIS	SI to	estimat	te a BTV is	recomme	nded only v	when the d	ata set ren	resents a b	ackground	
123 124								-			acted locat	-	
124		Juliu			U U.I.			22 301100				J J.	

	Α	В	С	D	E	F	G	Н	I	J	K	L
125	The use of USL tends to provide a balance between false positives and false negatives provided the data											
126	represents a background data set and when many onsite observations need to be compared with the BTV.											
127												